

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY


(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

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Applicant's or agent's file reference PPD 70433WO	FOR FURTHER ACTION		See Form PCT/PEA/416
International application No. PCT/EP2005/002229	International filing date (day/month/year) 03.03.2005	Priority date (day/month/year) 15.03.2004	
International Patent Classification (IPC) or national classification and IPC INV. A01N41/10			
Applicant SYNGENTA PARTICIPATIONS AG			
1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36. 2. This REPORT consists of a total of 8 sheets, including this cover sheet. 3. This report is also accompanied by ANNEXES, comprising: a. <input type="checkbox"/> sent to the applicant and to the International Bureau a total of sheets, as follows: <input type="checkbox"/> sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions). <input type="checkbox"/> sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box. b. <input type="checkbox"/> (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) , containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).			
4. This report contains indications relating to the following items: <input checked="" type="checkbox"/> Box No. I Basis of the report <input type="checkbox"/> Box No. II Priority <input type="checkbox"/> Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability <input type="checkbox"/> Box No. IV Lack of unity of invention <input checked="" type="checkbox"/> Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement <input type="checkbox"/> Box No. VI Certain documents cited <input type="checkbox"/> Box No. VII Certain defects in the international application <input type="checkbox"/> Box No. VIII Certain observations on the international application			
Date of submission of the demand 12.01.2006	Date of completion of this report 01.06.2006		
Name and mailing address of the international preliminary examining authority:  European Patent Office - P.B. 5818 Patentlaan 2 NL-2280 HV Rijswijk - Pays Bas Tel. +31 70 340 - 2040 Tx: 31 651 epo nl Fax: +31 70 340 - 3016	Authorized officer Muellners, W Telephone No. +31 70 340-3289		



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Box No. 1 Basis of the report

1. With regard to the **language**, this report is based on
- ☒ the international application in the language in which it was filed
 - ☐ a translation of the international application into , which is the language of a translation furnished for the purposes of:
 - ☐ international search (under Rules 12.3(a) and 23.1(b))
 - ☐ publication of the international application (under Rule 12.4(a))
 - ☐ international preliminary examination (under Rules 55.2(a) and/or 55.3(a))
2. With regard to the **elements*** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

Description, Pages

1-15 as originally filed

Claims, Numbers

1-19 as originally filed

- ☐ a sequence listing and/or any related table(s) - see Supplemental Box Relating to Sequence Listing
3. ☐ The amendments have resulted in the cancellation of:
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify):*
 - ☐ any table(s) related to sequence listing *(specify):*
4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).
- ☐ the description, pages
 - ☐ the claims, Nos.
 - ☐ the drawings, sheets/figs
 - ☐ the sequence listing *(specify):*
 - ☐ any table(s) related to sequence listing *(specify):*

* If item 4 applies, some or all of these sheets may be marked "superseded."

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Yes: Claims	1-19
	No: Claims	
Inventive step (IS)	Yes: Claims	
	No: Claims	1-19
Industrial applicability (IA)	Yes: Claims	1-19
	No: Claims	

2. Citations and explanations (Rule 70.7):

see separate sheet

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Reference is made to the following documents (D1-D7) cited in the International Search Report:

D1: WO 00/07444 A
D2: WO 01/43550 A
D3: WO 97/34486 A
D4: US-B1-6 534 444
D5: EP-A-0 261 492
D6: WO 99/40784 A
D7: EP-A-0 514 769

Novelty

The subject-matter of claims 1-19 is new in the sense of Article 33(1) and 33(2) PCT.

The claims are directed to suspoemulsions comprising a HPPD-inhibiting herbicide, a chloroacetamide herbicide and one or more aromatic ethoxylate compound (independent claim 1) and a corresponding method for controlling undesired vegetation by applying said suspoemulsions (independent claim 19).

Additionally claim 1 requires some negative features, namely the absence of polymeric stabilisers and of a specific ternary surfactant mixture.

Of the cited documents only D2-D4 disclose combinations of HPPD-inhibiting and chloroacetamide herbicides. None of these discloses specifically suspoemulsion formulations.

Documents D1, and D5-D7 disclose suspoemulsions comprising two pesticides and ethoxylated aromatic surfactants, but none does disclose specifically the combination of herbicides of claim 1. The surfactant system of D6 is the ternary combination excluded in claim 1 of the present application.

Inventive step

The subject-matter of claims 1-19 does not involve an inventive step in the sense of Article 33(1) and 33(3) PCT.

The problem underlying the application can be seen in the provision of chemically and

physically stable suspoemulsion formulations of combinations of HPPD-inhibiting herbicides and chloroacetamide herbicides.

The proposed solution according to claim 1 is characterised by the presence of one or more aromatic ethoxylate compounds.

Although it is not specified in claim 1 it is assumed that this is meant to refer to surface active compounds of that type.

The negative features seem not to correspond to a technical requirement, i.e. that the presence of a polymeric stabilizer or of the ternary surfactant mixture would lead to unstable suspoemulsions. Rather there mentioning seems only to serve to secure novelty of the subject-matter and/or to emphasise advantages, namely that their presence is not necessary (cf. the description page, lines 17-18).

The closest prior art is represented by documents D2-D4 disclosing combinations of chloroacetamide herbicides each with one of the three subclasses of HPPD-inhibiting herbicides specified in dependent claims 3, 7 and 10 respectively.

All these documents propose commonly used types of formulations for the combinations, like granules, powders, emulsion concentrates, flowables, solutions, suspensions, suspoemulsions etc. (cf. D2, page 7, lines 12-14; D3, page 3, lines 23-28; D4, column 24, lines 16-24), but none of them specifically realises a suspoemulsion.

However, it is well known that suspoemulsion formulations have some advantages in particular when combinations of active ingredients have to be formulated (see for instance the description of the present application page 1, paragraph 3).

The skilled person who wants to formulate a suspoemulsion of combinations of HPPD-inhibiting and chloroacetamide herbicides as they are disclosed in D2-D4 would turn to known suspoemulsion formulations of pesticides for guidance which surfactants and dispersants to use.

All the documents D1 and D5-D7 relating to suspoemulsions propose ethoxylated aromatic compounds as surfactants to be used .

D1 discloses (cf. the passages cited in the international search report) suspoemulsions comprising a first surfactant acting primarily as oil emulsifier and secondarily as a particle dispersant and a second surfactant with the reversed attribution. This system allows to avoid using polymer dispersants. The preferred surfactants are those aromatic ethoxylated compound which are also among the particularly preferred ones of claim 12 of the present application, namely tristerylphenol ethoxylates, and their phosphates.

Ethoxylated tristerylphenols are also taught in documents D5-D7 as surfactants of choice in suspoemulsion formulations, including formulations comprising the chloroacetamide herbicide S-metolachlor (D6).

The ethoxylated tristerylphenol surfactant known as Soprophor[®] S-25 used in the present application is also used in D3 together with a sulphonic acid stabiliser like e.g. dodecyl benzene sulphonic acid, which (as NANSA[®] EVM63/B) is also present in all example formulations of the present application, in emulsifiable concentrates comprising de HPPD-inhibitor isoxaflutole and the chloroacetamide metolachlor (cf. D3, example 2). It was thus also known that these surfactants are compatible with the herbicides of the present application.

Therefore formulating the known combination of HPPD-inhibiting herbicides and chloroacetamide herbicides as suspoemulsions and choosing an aromatic ethoxylate compound among the numerous examples of surfactants, which have successfully been used in suspoemulsions does not involve an inventive step. The mere fact that one could as well have chosen another surfactant does not already indicate involvement of an inventive step for the particular choice made.

The introduction of any of the features of the dependent claims into solutions of the problem appears merely one of several straightforward possibilities from which the skilled person would select, in accordance with circumstances, without the exercise of inventive skill. In fact, most of the additional features of depending claims are already specifically disclosed in the cited documents, e.g. the HPPD-inhibitors and chloroacetamides of claims 3-11 and the aromatic ethoxylates of claim 12 (see above).

Clarity, support and disclosure

If one would assume that among the numerous examples of surfactants, which have been successfully used in suspoemulsions only very few would be suitable in a particular case because the suitability of a surfactant is dependent on the active ingredient and the specific liquid/liquid and liquid/solid interfaces present, it must follow that the subject-matter of the claims to a considerable extent does not actually solve the underlying problem and thus does not meet the requirement of Article 6 PCT.

The above assumption is based on the allegation that the chemo-physical properties of the four components (I) the continuous phase (II) the suspended herbicide, (III) the surfactant, and (IV) the oil phase are decisive factors which need careful balancing.

The claims are irreconcilable with such an allegation. Independent claim 1 allows for any type of continuous phase. The herbicide is characterised by its mode of action rather than structural features determining its chemo-physical properties and even where defined structurally in depending claims considerable variation in basic structure and in substituents is allowed. The surfactant may be any aromatic ethoxylate, which may be anionic as well as non-ionic and even cationic is not excluded by claim 1. The oil phase finally is not defined at all.

In remarkable contrast to the claims the examples always use exactly the same oil phase with exactly the same chloroacetamide, namely S-metolachlor. The further ingredients added to the combination of oil phase and mill base premixes to arrive at the final formulation are also always exactly the same. Finally also the millbase premix containing the HPPD inhibiting herbicide, which is always mesotrione, is always exactly the same except for the surfactant. The latter varies only slightly, it is either a tristyrylphenol ethoxylate or nonylphenol-propoxylate-ethoxylate.

Thus if the above assumption is correct, the dramatic generalisation of the claim implying that any aromatic ethoxylate would do and that precisely those components never varied at all in the examples could be chosen almost completely unrestricted is not justified.

It would further follow that in as far as the claims may cover other solutions to the underlying problem than those of the examples or conceivable by reasonable generalisation starting from these examples, they will not meet the requirement of Article 5 PCT, i.e. lack disclosure. The skilled person could only arrive at these other solutions by

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an undue amount of experimentation or inventive skill.

Industrial Applicability

The subject-matter of claims 1-19 is considered to be industrially applicable (Article 33(1) and (4) PCT).